MICRO-RESERVOIR OSMOTIC RELEASE SYSTEMS AND MICROTUBE ARRAY DEVICE

Abstract of the Disclosure

Devices and methods are provided for controlled release of chemical molecules, such as drugs. One device comprises a plurality of reservoirs; a rupturable covering, such as a thin metal film, enclosing a first end of each reservoir; a release formulation in each reservoir comprising chemical molecules for release; an expanding material layer in each reservoir; and a semi-permeable membrane enclosing a second end of each reservoir distal the release formulation, the semi-permeable membrane being operable to permit selected molecules (e.g., water) from outside the reservoir to diffuse to the expanding material layer to expand the expanding material layer and displace the release formulation in an amount effective rupture the rupturable membrane and discharge the release formulation. The device may further comprises a reservoir cap covering semi-permeable membrane and means for selectively disintegrating the reservoir cap to initiate diffusion of fluid molecules from outside the reservoir and through the semi-permeable membrane.